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Bruce E. Harang PO BOX 872735 VANCOUVER, WA 98687-2735			BAUER, SCOTT ALLEN	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/709,050

Applicant(s)

BORREGO BEL ET AL. 

Examiner

Scott Bauer

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2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8 and 10-17 is/are rejected.
- 7) ☒ Claim(s) 6 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/8/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 2 is objected to because of the following informalities: Claim 2 contains the phrase, "A system according to the previous claim". Although it is understood the applicant is referring to Claim 1, this should be changed to read, "A system according to Claim 1", for the purpose of avoiding confusing in the event of future claim cancellations or amendments. Appropriate correction is required.
2. In Claim 3, the word "addition" should be changed to the word "additional".

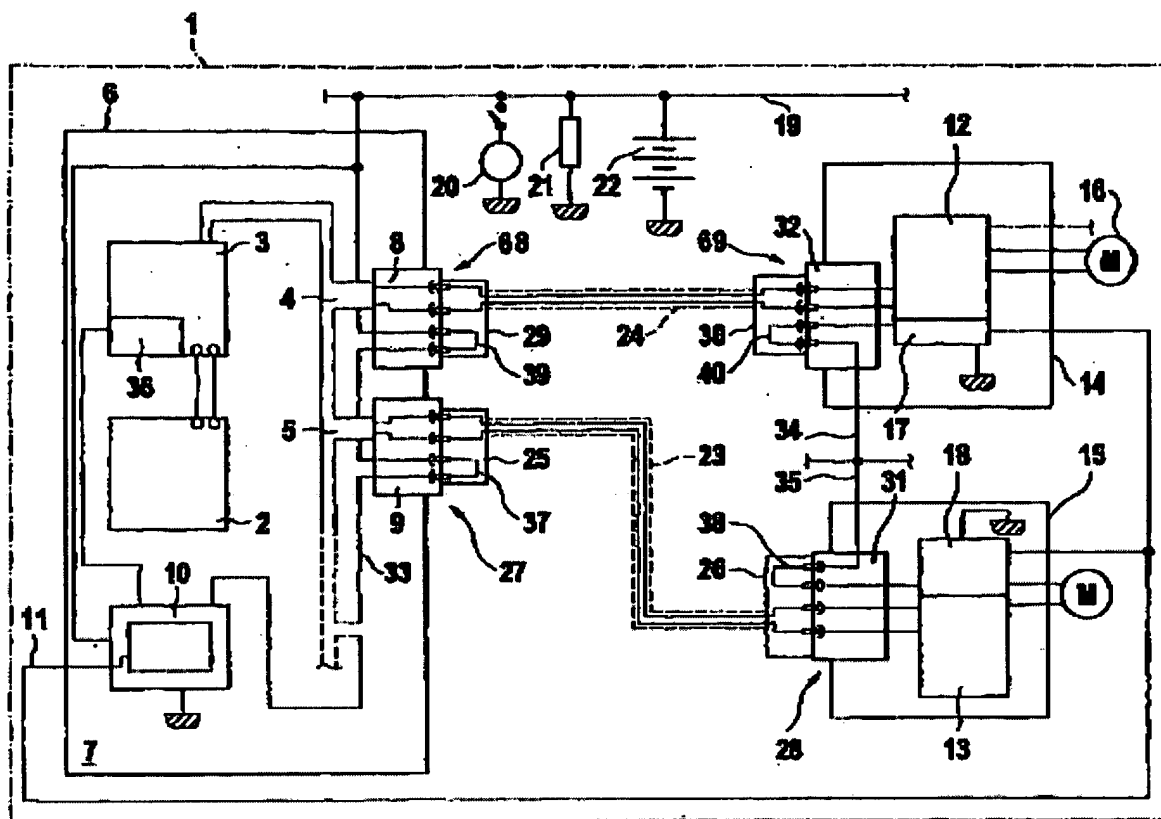
### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 & 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Blutbacher (US 6746250).



**FIG. 1**

5. With regard to Claim 1, Blutbacher, in Figure 1, discloses a system for preventing electric arcs in connectors feeding power loads, which connectors (27,68), interspersed in an electric power supply and distribution network (1), are of the type comprising first and second releasable socket coupling electroinsulating connection supports (8 & 9, 25 & 29) bearing at least one pair of terminals which, in a first definitive coupling position A, are electrically coupled together, forming an electric power through channel (23 & 24) towards a corresponding power load (14 & 15), and which the terminals in a second decoupling position C of the electroinsulating physically separated, connection supports

(8 & 9, 25 & 29) are physically separated, the voltage level of the network separation can generate an electric arc, characterized in that each one of the connections comprises at least a pair of additional electroconductive elements for detection purposes which, in the first position A, or in intermediate position B of a decoupling run between the electroinsulating connection supports (89, 25 & 29) and before the terminals reach the second position C, form an auxiliary electric circuit (33, 34 & 35) through which it is susceptible to generating an electric warning signal in correspondence with a displacement of the supports (8 & 9, 25 & 29) towards a decoupling situation and upon overcoming a preset threshold in the decoupling run, and in that at least one disconnection protection device (3 & 36) has been provided, connected to the auxiliary circuit (33, 34 & 35), prepared so that upon receiving said electric warning signal, it immediately interrupts the electric fed to the channel (23 & 24) formed by the two terminals before the latter reach the second position C of physical separation between them (column 7 lines 53-64).

6. With regard to Claim 2, Blutbacher, in Figure 1, discloses a system according to Claim 1, characterized in that the connectors (27, 28, 68 & 69) are multi-contact connectors which, through a series of pairs of power terminals, form a plurality of feed channels (23 & 24) of several respective power loads (14 & 15), and in that each connector (27, 28, 68 & 69) integrates two electroconductive detection contact terminals or parts, susceptible to forming the auxiliary circuit (33, 34 & 35) in the first position A, or

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in intermediate position B of a decoupling run between the electroinsulating connection supports (8 & 9, 25 & 29) and before the terminals reach the second position C.

7. Claims 7, 8, 10, 12, 13 & 15-17 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Blutbacher (US 6746250).

8. With regard to Claim 7, Blutbacher, in Figure 1, discloses a system according to Claim 2, characterized in that the disconnection protection device (3 & 36), of which there is at least one, is integrated in an electronic unit (7) or distribution box which controls a plurality of connectors (27, 28, 68 & 69) and which unit (7) comprises a circuit (10) for identification of the connector or connectors ((27, 28, 68 & 69)) in transition towards decoupling position B, which circuit (16) is connected to a microprocessor (10) controlling said disconnection protection device (3 & 36) linked to the electric power feed source and from which several corresponding circuits or channels are formed which pass through a distribution connector (27 & 68) and from which they branch off towards the corresponding connectors (26 & 69) and their electrically coupled terminals (column 5 lines 64 & 67 & column 6 lines 1-7).

Blutbacher teaches that the microprocessor 10 provides a circuit for identification of the connector, and also controls the disconnection protection device. Further, the distribution connector taught by Blutbacher is taught as two connectors (27 & 68) in Fig.

9. However, Figure 1 is a schematic and not a circuit diagram and so connectors 8 & 9 could be realized as a single connector.

10. In the alternative, if connectors 8 & 9 are considered two separate connectors, then Claim 7 is rejected under 35 U.S.C. 103(a) as obvious over Blutbacher.

11. Blutbacher teaches all elements disclosed in Claim 1 and Claim 7 except that connectors 8 & 9 comprise two connectors instead of one single connector.

However, the number of connectors used to distribute power to a load does not affect the performance of the device. Furthermore, it has been held that the use of a one-piece construction instead of two separate components would have been obvious in view of the prior art, *Schenk v Norton Corp.*, 713F. 2d 782, 218 USPQ 698 (Fed Cir 1983).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use one distribution connector instead of two, to distribute the power to two loads, for the purpose of saving space and cost.

12. With regard to Claim 8, Blutbacher, in Figure 1, discloses a system according to Claim 7, characterized in that through the distribution connector (27 & 68), a line of the corresponding auxiliary circuit (33, 34, & 35) of each connector (27, 28, 68 & 69) is received, which lines are fed to said connector identification circuit (10) which, according to which is the connector (27 & 68) from which the warning signal is received,

acts on the microprocessor (10) by sending a preferential interruption which generates a corresponding order to the disconnection protection device (3 & 36) to disconnect the feed towards the power channel or lines passing through the corresponding connector (27, 28, 68 & 69) (Column 7 lines 8-29).

Blutbacher also teaches that identification circuit and microprocessor (10) are directly connected via connectors (27 & 28), to the auxiliary circuit (33) to receive a warning signal if connectors 27 & 68 are disconnected causing the microprocessor to open the protection device (3 & 36). Blutbacher further teaches that auxiliary circuits (34 & 35) are connected to microprocessor 10 through control units 12 & 13, which send a signal to microprocessor 10 via CAN bus 11 when connectors 28 & 69 are disconnected.

13. With regard to Claim 10, Blutbacher, in Figure 1, discloses a system according to claim 8, characterized in that a first one of the detection terminals of said pair of terminals of each connector (27, 28, 68 & 69) is fed at a voltage not susceptible to generating an electric arc, and the second one of the detection terminals is connected by means of a conductor (33, 34 & 35) to said disconnection identification circuit (10), each one of which elements of said pair of detection terminals is provided with a configuration such that they carry out an interruption in the connection or a permanent disconnection between said voltage not susceptible to generating an electric arc and the disconnection identification circuit (10) before the disconnection of the pair of power



terminals provided in electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) occurs (column 4 37-52).

14. With regard to Claim 12, Blutbacher, in Figure 1, discloses a system according to Claim 1, characterized in that the first and second electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) of each connector (27, 28, 68 & 69) comprise mechanical closure means of mutual coupling thereof by virtue of which their decoupling is carried out in two steps: a first step in which a displacement is produced until overcoming a threshold in the decoupling run which generates a permanent disconnection or connection of the pair of electroconductive detection elements (33, 34 & 35), and a second step in which the disconnection of the pair of power terminals from their feed is produced (column 7 lines 53-64).

15. With regard to Claim 13, Blutbacher, in Figure 1, discloses a system according to Claim 1 or 7, characterized in that said disconnection protection device (3 & 36) is made up of a power relay (column 8 lines 1-10).

The disconnection protection device taught by Blutbacher comprises a coil (36) turned on and off to open and close a circuit breaker (3), which is the definition of a power relay in the applicants disclosure (paragraph 0029).

16. With regard to Claim 15, Blutbacher, in Figure 1, discloses a method for preventing electric arc formation in connectors feeding power loads, which connectors

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(27, 28, 68 & 69), interspersed in an electric power supply and distribution network, are of the type comprising first and second releasable socket coupling electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) bearing at least one pair of terminals which, in a first definitive coupling position A, are electrically coupled together forming an electric power through channel towards a corresponding power load (14 & 15), and which terminals, in a second decoupling position C of the electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) are physically separated, the voltage of said network being such that said separation can generate an electric arc, characterized in that it comprises the provision in each one of said connectors (27, 28, 68 & 69) of at least one pair of electroconductive elements (33, 34 & 35), for detection functions which, in said first position A or in intermediate position B of a decoupling run between the electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) and before the terminals reach said second position C, form an auxiliary electric circuit (33, 34 & 35), and in that through said auxiliary circuit and depending on a change in the conditions thereof, such as a connection or disconnection situation, an electric warning signal is generated in correspondence with a displacement of the released supports (8 & 29, 30 & 32, & 26 & 31) towards said position C, and upon overcoming a preset threshold in the decoupling run, which signal is sent to at least one disconnection protection device (3 & 36) which, upon receiving said electric warning signal, immediately interrupts the electric feed to said channel formed by said two terminals before these reach said second physical separation position C (column 7 lines 53-64).

17. With regard to Claim 16, Blutbacher, in Figure 1, discloses a method according to claim 15, characterized in that in the distribution network, there is a plurality of connectors (27, 28, 68 & 69) feeding different power loads, and in that said electric warning signal, generated from said auxiliary circuit (33, 34 & 35), is sent to a circuit (12, 13) for identification of the connector (27, 28, 68 & 69) affected by a transition towards decoupling, and in that from said circuit (10), a preferential interruption is generated to a microprocessor (10) which acts on a disconnection protection device (3 & 36) which selectively cuts off the electric feed to said connector (27, 28, 68 & 69) at hand.

18. With regard to Claim 17, Blutbacher, in Figure 1, discloses a connector for feeding a power load, provided for its incorporation in a feed line of said load, of the type constituted of first and second releasable socket coupling electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31) bearing at least one pair of terminals which, in a first definitive coupling position A, are electrically coupled together forming an electric power through channel towards a corresponding power load (14, 15), and which terminals, in a second decoupling position C of the electroinsulating connection supports (8 & 29, 30 & 32, & 26 & 31), are physically separated, the voltage level of said network being such that said separation can generate an electric arc, characterized in that said connector (27, 28, 68 & 69) comprises at least one pair of additional electroconductive elements for detection functions which, in said first position A, or in intermediate position B of a decoupling run between the electroinsulating connection

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supports (8 & 29, 30 & 32, & 26 & 31) and before said terminals reach said second position C, form an auxiliary electric circuit (33, 34 & 35) through which an electric warning signal is susceptible to being generated in correspondence with a displacement of the supports (8 & 29, 30 & 32, & 26 & 31) towards a decoupling situation and upon overcoming a preset threshold in the decoupling run (column 7 lines 53-64)

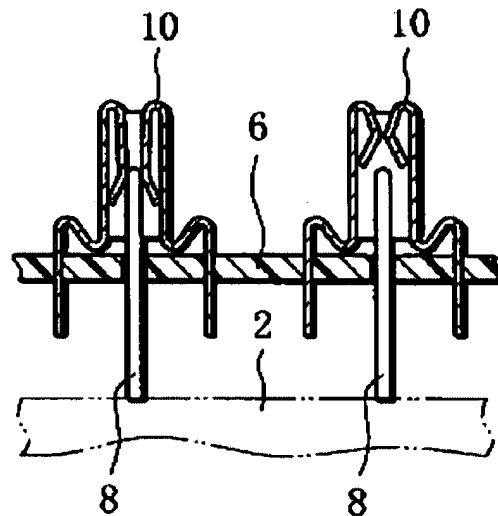
***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blutbacher in view of Murakami et al. (US 6524117).

FIG. 5B



21. With regard to Claim 3, Blutbacher teaches a system according to Claim 2 where each one of the connectors comprises several pairs of power terminals and a pair of terminals for defining an auxiliary circuit.

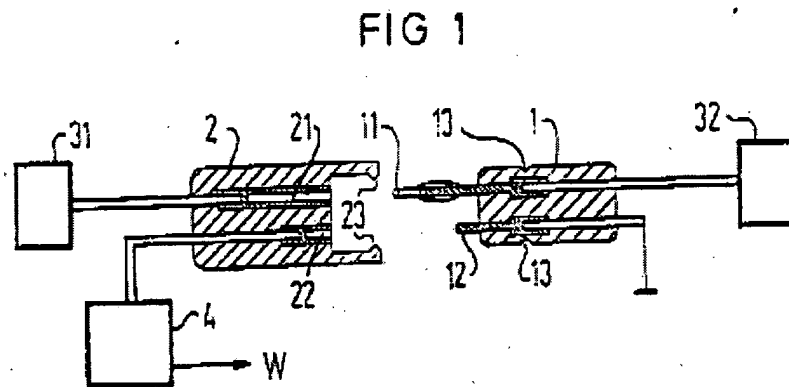
Blutbacher does not teach that the terminals of the auxiliary circuit are male pins and female base pairs where the male pins are of equal length and/or arranged at the same level whereas the female base of the pair of detection terminals is shorter or more withdrawn than the female base of the pair of power terminals.

Murakami et al., in Figure 5B, teaches a connection device to be used in an automobile with adjoining female terminals (10) having different contact positions to the mating male terminals (8) with respect to the top surface of an ECU board 6 or the

positions of their proximal ends as seen in the fitting direction and all the male terminals (8) have the same protrusion length from the bottom of the lower case (2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Blutbacher with Murakami et al. by using the connector of Murakami et al. as the plug in connectors taught by Blutbacher for the purpose of providing a cheap and more reliable means for ensuring that current flow is removed from the power terminals prior to disconnection.

22. Claims 4 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blutbacher in view of Huber (US 4927382).



23. With regard to Claim 4, Blutbacher teaches a system according to Claim 2 where each one of the connectors comprises several pairs of power terminals and a pair of terminals for defining an auxiliary circuit.

Blutbacher does not teach that the terminals of the auxiliary circuit are male pins and female base pairs where the male pin of the detection terminals is shorter or more withdrawn than the male pin of the pair of power terminals.

Huber, in Figure 1, teaches an electrical function group for a vehicle comprising a circuit that contains at least two electrical module units (13 & 2) that are connected via at least one electrical plug-type connector comprising a plug part (11) and a socket part (21) arranged in facing positions on first supports (1) and second support (2) respectively, whereby the plug part has at least one contact comprising a longer contact pin and at least one signal contact comprising a shorter contact pin, and the socket part has at least two contact sleeves for frictional acceptance of the contact pins.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Blutbacher with Huber by using the connector of Huber as the plug in connectors taught by Blutbacher for the purpose of providing a cheap and more reliable means for ensuring that current flow is removed from the power terminals prior to disconnection.

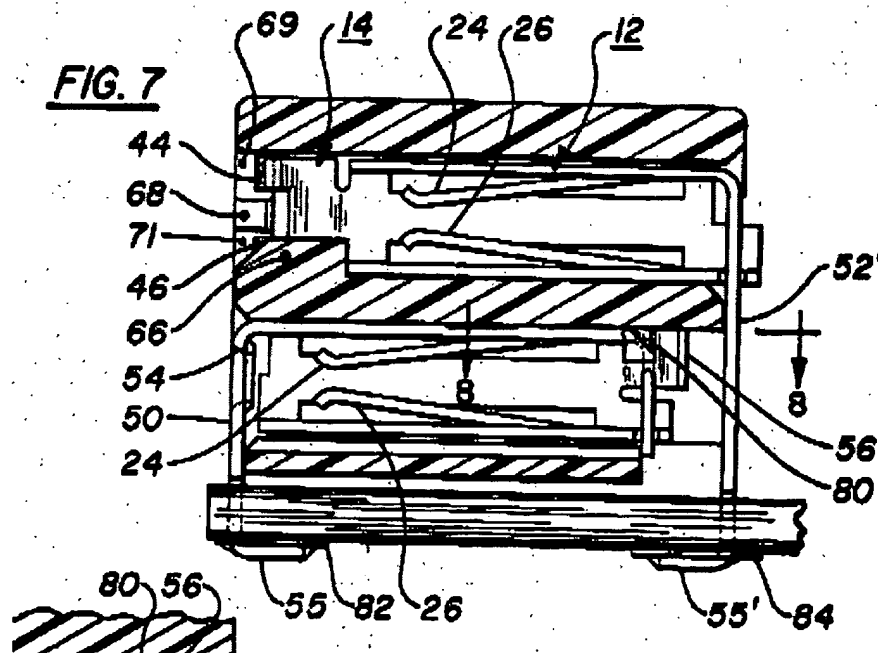
24. With regard to Claim 11, Blutbacher teaches the system according to Claim 10 wherein an identification circuit is informed of an interruption when it detects the disconnection of the detection circuit and disconnects the power circuit.

Blutbacher does not teach that one terminal of the detection circuit is connected to a ground reference and that the identification circuit detects a disconnection when it senses a minimum self-impedance instead of a maximum impedance.

Huber, in Figure 1, teaches that a terminal (12) of the detection circuit is connected to ground and that a microprocessor (4) senses the absence of a ground potential to generate an alarm signal (column 2 lines 59-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Blutbacher with Huber by replacing the 12-14 V detection reference taught by Blutbacher with the ground potential detection reference taught by Huber for the purpose of reducing the power used by the automotive system and to ensure that the detection circuit contacts will not arc as the detector contacts are separated.

25. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blutbacher in view of Matthews (US 3711819).





26. With regard to Claim 5, Blutbacher teaches the system accord to claim 2 where each of the connectors comprises several pairs of power terminals with a pair of terminals defining an auxiliary circuit. The disclosed connector also contains male and female terminals arranged in the first and second terminals.

Blutbacher does not teach that one of the supports of the connector have a stepped recess in correspondence with the position of the pin such that the pin is more withdrawn with respect to the remaining terminals of the connector.

Matthews, in Figure 7, teaches a connector for receiving male prongs comprising an upper tier connector and a lower tier connector. The upper tier has a contact set further back in the connector than the lower tier. The upper tier body also has a stepped recess containing locking device 14, causing the insert prong to be more withdrawn with regard to the remaining terminals (column 6 lines 3-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system taught Blutbacher with the connector taught by Matthews for the purpose of providing a locking device to a connector protected from arcing and to substantially reduce the amount of force required to mate the connectors as only one contact is connected at a time.

27. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blutbacher in view of Toy (US 5952741).

28. With regard to Claim 14, Blutbacher teaches a system according to Claim 1 with a disconnection protection device.

Blutbacher does not teach that the disconnection protection device is constituted of an FET power transistor.

Toy, in Figure 1, teaches an external AC adapter wherein the terminal 20 prematurely separates from the grounded terminal 30. Control unit 18 senses this and uses switch 8 to remove power from the circuit. Toy teaches that switch 8 comprises a high voltage FET.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Blutbacher with Toy by replacing the disconnection unit ( 3 & 36) taught by Blutbacher with the FET taught by Toy for the purpose of providing a more reliable disconnection that requires no movable parts.

#### ***Allowable Subject Matter***

29. Claims 6 & 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. Claim 6 would be allowable if written in independent form because the prior art does not teach an electrical connector with male and female contacts and that the male body carries a conductive part which momentarily connects two conductive strips in the side wall of the female body, which send a warning signal to disconnect the power from

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the power terminals. Although various audio connectors and vehicle cigarette lighter connectors teach the use of side wall contacts to complete an electrical circuit with contacts located in the outlet housing, the prior art does not teach using these contacts for the method of arc prevention.

31. Claim 9 would be allowable if rewritten in independent form because the prior art does not teach that the number of terminals present in each connector increases the closer the connector is to the electronic unit. Blutbacher teaches that each connector has a pair of detection terminals, however, Blutbacher does not teach that the disconnection terminal of each connector must also be contained in a terminal of the preceding connector as well.


### ***Conclusion***

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bauer whose telephone number is 571-272-5986. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAB



PHUONG T. VU  
PRIMARY EXAMINER